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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/014,310

12/11/2001

Ritesh P. Shah

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08/29/2003

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EXAMINER

OLTMANS, ANDREW L

ART UNIT

PAPER NUMBER

1742

DATE MAILED: 08/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/014,310

Applicant(s)

SHAH ET AL.

Examiner

Andrew L Oltmans

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 32-75 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 32-75 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2, 5, 9, 10, 13
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 76-82 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a tantalum sputtering target blank having a substantially uniform crystallographic orientation {100} across a surface, or throughout the thickness of the target, does not reasonably provide enablement for a tantalum sputtering target blank having a substantially uniform crystallographic orientation {x,y,z} (with x, y and z as defined in the claim) across a surface of the target, wherein the crystallographic orientation is not {100}. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The specification is entirely drawn to a tantalum material having a crystallographic orientation that is {100}. The specification page 1, lines 18-20 recite, "the invention comprises a tantalum sputtering target of at least about 99.95% tantalum and a substantially uniform {100} crystallographic orientation", clearly showing that the invention is drawn only to the {100} orientation. Further, all of the example (e.g. Example, page 13, lines 19-23) and Figures (e.g. Figures 4-6) are solely drawn to the {100} orientation.

Although the formula in the newly added claims encompasses the {100} structure, the formula also encompasses an enormous number of other orientations which are not enabled in

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the specification, constrained only by the limitation that "two or more of x, y and z can be the same as one another". This formula includes, in addition to those configuration cited by applicant in the response filed March 11, 2003, configurations such as {411}, {414}, {133}, {121}, {322}, {110}, etc... It is further noted that the limitation merely recites that x, y and z "can" be the same, not that they are indeed the same. Therefore, other configurations such as {123}, are also within the scope of the claim. Given the enormous number of configurations included in the formula recited in the newly presented claim, the claims are not enabled for a tantalum sputtering target blank having a substantially uniform crystallographic orientation {x,y,z} (with x, y and z as defined in the claim) across a surface of the target (with the x, y and z defined in the claim), wherein the crystallographic orientation is not {100}.

3. Claims 76-82 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The preliminary amendment adding claims 76-82, filed March 11, 2003 contains crystallographic orientations of the tantalum article which were not described in the specification in such a way as to reasonably convey to one of ordinary skill in the art that the inventor had possession of the claimed invention. The newly added limitation "substantially uniform crystallographic orientation {x,y,z} [with x, y and z as defined in the claim] across a surface of the target". Although there is support in the specification for a {100} structure (see e.g. page 1, lines 18-20), nowhere in the specification or figures is there a description of any other orientation. Because the matter encompassed by {x,y,z}, other than {100}, was not described in

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the specification, all of the orientations encompassed by {x,y,z}, other than {100} constitute new matter.

4. Claims 62-67 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The second preliminary amendment filed June 24, 2002 recites "{001} pole figures", wherein various center peak intensities are recited. The applicant has not pointed out, nor has the examiner found support in the application as originally filed for the center peak intensities claimed.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Wright et al. "Textural and Microstructural Gradient Effects on the Mechanical Behavior of a Tantalum Plate" Metallurgical Transactions A, pages 1-17***

6. Claims 38-41, 44-46, 55-56, 59-60, 62-67, 73 and 76-82 are rejected under 35 U.S.C. 102(b) as being anticipated by Wright et al. "Textural and Microstructural Gradient Effects on the Mechanical Behavior of a Tantalum Plate" Metallurgical Transactions A, pages 1-17 (Wright; cited on IDS filed February 6, 2003).

Wright teaches the tantalum product instantly claimed, wherein the tantalum product (i.e. plate, disc, blank, etc...) has the claimed purity (e.g., page 1, Table I) wherein the grain size is the instantly claimed grain size (page 3, Section B), and wherein the texture is the instantly claimed texture, including the instantly recited pole figure center peak intensities (e.g. Figure 4, 5 and 7), as recited in instant claims 38-41, 44-46, 55-56, 59-60, 62-67, 73 and 76-82. The claims do not distinguish over the teachings of Wright.

***Friedman, "Grain Size Refinement in a Tantalum Ingot" Metallurgical Transactions, pages 337-341***

7. Claims 38-41, 44-46, 55-56, 59-60, 62-67, 73 and 76-82 are rejected under 35 U.S.C. 102(b) as being anticipated by Friedman, "Grain Size Refinement in a Tantalum Ingot" Metallurgical Transactions, pages 337-341 (Friedman).

Friedman teaches the tantalum product instantly claimed, wherein the tantalum product (i.e. plate, disc, blank, etc...) has the claimed purity (e.g. page 1, col 2) wherein the grain size is the instantly claimed grain size (page 1, col 1; page 340, col 2), as recited in instant claims 38-41, 44-46, 55-56 and 59-60, and wherein the process of producing the material is substantially identical (deformation and anneal) to the method of making the claimed invention as recited in the specification (see page 11, lines 5-13 and pages 12-13). The claims do not distinguish over the teachings of Friedman.

With respect to the textures recited in claims 62-67, 73 and 76-82, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been anticipated because the composition taught by the reference is the same as the composition recited in the claims and the method of making the article taught in the reference is substantially

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identical to the method of making the claimed article and therefore one of ordinary skill in the art would find the properties of the products to be the same, including the product's crystallographic texture.

**"Where the claimed and prior art products are identical or substantially identical in structure or composition or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best 195 USPQ 430, 433 (CCPA 1977)." see MPEP 2112.01. [emphasis added by examiner]**

### *Double Patenting*

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 32-82 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-15 of U.S. Patent No. 6,348,139. Although the conflicting claims are not identical, they are not patentably distinct from each other because U.S. Patent No. 6,348,139 teaches a tantalum article having the same crystallographic orientation, grain size and uniformity instantly claimed (see claims 1-15 of 6,348,139):

1. A tantalum sputtering target comprising at least about  
60 99.95 weight percent tantalum and a substantially uniform  
{100} crystallographic orientation across a surface of the  
target.
2. The tantalum sputtering target of claim 1 further  
comprising a maximum tantalum grain size of less than 50  
65 microns at the target surface.
3. The tantalum sputtering target of claim 1 further  
comprising an average grain size of about 25 microns.
4. The tantalum sputtering target of claim 1 produced  
from a frictionless forged billet.
5. The tantalum sputtering target of claim 1 having a  
thickness; and wherein the sputtering target comprises the  
substantially uniform {100} crystallographic orientation  
throughout the thickness.
6. The tantalum sputtering target of claim 1 further  
comprising an average tantalum grain size of less than 50  
microns at the target surface.
7. A sputtering target comprising at least about 99.95  
weight percent tantalum and a maximum grain size of less  
than 50 microns.
8. The tantalum sputtering target of claim 7 produced  
from a frictionless forged billet.
9. A tantalum sputtering target comprising an average  
grain size of about 25 microns.
10. The tantalum sputtering target of claim 9 comprising  
a maximum grain size of less than 50 microns.



11. A sputtering target comprising at least about 99.95 weight percent tantalum; the sputtering target having a thickness, and a maximum grain size of less than 50 microns throughout the thickness; the sputtering target also comprising a substantially uniform {100} crystallographic orientation throughout the thickness.

12. The tantalum sputtering target of claim 11 comprising an average tantalum grain size of less than 50 microns throughout the thickness.

13. A sputtering target comprising at least about 99.95 weight percent tantalum and an average grain size of less than 50 microns.

14. The tantalum sputtering target of claim 13 produced from a frictionless forged billet.

15. A sputtering target comprising at least about 99.95 weight percent tantalum and an average grain size of less than about 25 microns.

The preambles of the instant claims do not distinguish the tantalum articles claimed from the tantalum articles claimed in U.S. Patent No. 6,348,139. It is further noted that the center peak intensity merely describe intensity profiles that encompass the "substantially uniform" orientation. The instant claims are obvious in view of the claims of U.S. Patent No. 6,348,139.

#### ***Response to Amendment***

10. The declaration filed on May 2, 2002 under 37 CFR 1.131 has been considered but is ineffective to overcome the "Cabot reference" reference.

The exhibit relied upon (i.e. notebook entries) have not been specifically referred to in the declaration in terms of what is relied upon. While the examiner notes the exhibit provided, no explanation of the entries set forth therein have been provided. "The affidavit or declaration and exhibits must clearly explain which facts or data applicant is relying on to show completion of

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his or her invention prior to the particular date. Vague and general statements in broad terms about what the exhibits describe along with a general assertion that the exhibits describe a reduction to practice “amounts essentially to mere pleading, unsupported by proof or a showing of facts” and, thus, does not satisfy the requirements of 37 CFR 1.131(b). In re Borkowski, 505 F.2d 713, 184 USPQ 29 (CCPA 1974)” (see MPEP 715.07). In this case, the declaration does not clearly explain the facts or data applicant is relying on, nor does the applicant establish that the material displayed in the notebook is commensurate in scope with the claims. It is further noted that the reference to which the applicant is not appear to be a publication, but is rather a Material Evaluation Report, presumably provided in connection with a purchase of material. It is noted that a “printed publication” must be available to the public, see MPEP 2128. The applicant should clearly point out what purpose the 1.131 declaration has with respect to this document. For example, applicant should point to either the “publication” date of the Material Evaluation Report, clearly setting forth that the document is a publication, or should clearly establish that the date is for the activity (e.g. sale) of the material, see MPEP 715.

### *Conclusion*

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew L. Oltmans whose telephone number is 703-308-2594. The examiner can normally be reached 7:00-3:30 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Roy King can be reached on 703-308-1146. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Andrew L. Oltmans  
Examiner  
Art Unit 1742

August 20, 2003